

Hybrid Electric Vehicle Experimentation and Assessment (HEVEA)

No industry or SAE standards for measuring fuel economy of hybrid vehicles in military environments .

Objectives

- Develop Hybrid Electric Vehicle (HEV) Fuel Economy and performance Test Operating Procedures (TOP)
- Determine the fuel economy benefits of HEV using quantifiable test data
- Develop and validate TARDEC M&S models
- Provide a tool to predict hybrid electric drive cycle performance and fuel economy

Programmatic Intent

- Enhance future Tactical Wheeled Vehicles (TWV) mobility thru experimentation and performance analyses using hybrid vehicle capabilities.
- Support JLTV Acquisition Strategy with sufficient and relevant HEV test data and lessons learned



2 Parallel hybrid UVs

Testing

9 conventional and 7 hybrid electric vehicles are being tested

A. Conventional:
2 - HMMWVs,
2 -2 1/2T LMTVs
1 - 5T MTV
1 - FMTV CVT
2 - HEMTTs
1 - AM GEN UV

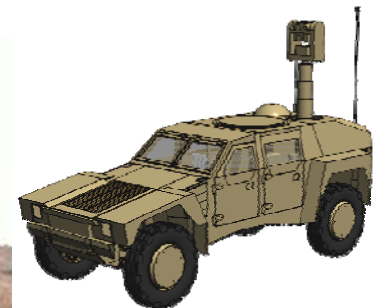
B. Hybrid Electric
1 - HMMWV
1 - RSTV
1 - IMG UV
1 - LM UV
1 - AH/SS MSV
1 - BAE FMTV
1 - OSHKOSH HEMTT A3



Parallel Hybrid MSV



HMMWV Series HE



RSTV Series HE

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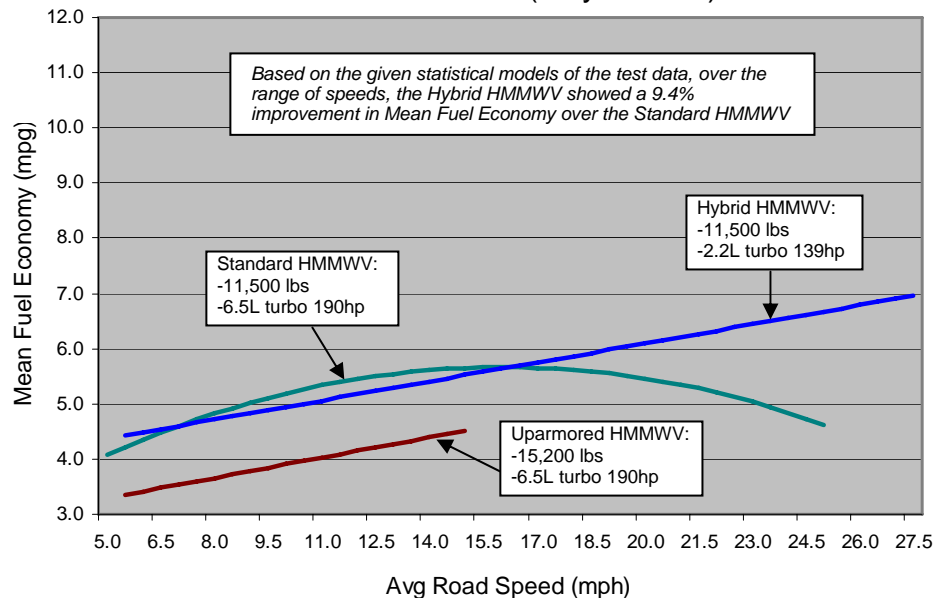
Major Accomplishments

Accomplishment
Draft TOP developed for Fuel Economy testing on Hybrid Electric Vehicles
Analysis of system level trades for cost and payload on Hybrid Electric Vehicles vs Mechanical vehicles
Initial ballistic impact on Li-Ion and NiMH batteries
Extreme Temperature Testing (Arctic and Desert)
Modeling and Simulations: VPSET, HMMWV models

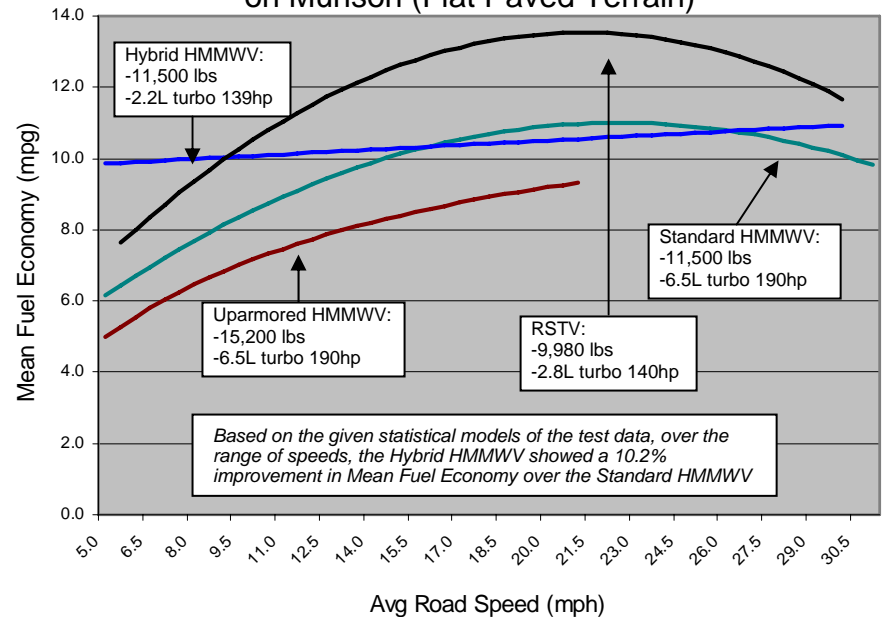
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Emerging Results

Fuel Economy
on Churchville (Hilly Terrain)



Fuel Economy
on Munson (Flat Paved Terrain)



Fuel Economy Varies with Terrain & Driving Conditions